

Title (en)

Optical pickup with diffractive element for aberration compensation

Title (de)

Optisches Abtastgerät mit diffraktivem Element zur Kompensation von Aberrationen

Title (fr)

Tête de lecture optique comportant un élément diffractif pour la compensation d'aberrations

Publication

**EP 1347447 A1 20030924 (EN)**


Application

**EP 03006124 A 20030318**

Priority

JP 2002074686 A 20020318

Abstract (en)

Disclosed is such an optical pickup controlling an aberration even if optical axes of an objective lens and another optical system are shifted from each other. The optical pickup is a device for recording or reproducing an information signal by irradiating light along a track of a rotating optical disk, including a light source, a beam expander for changing a parallelism of light emitted from the light source, and an objective lens 33 for collecting the light emitted from the beam expander along the track of the optical disk and for irradiating the collected light thereonto, wherein the beam expander is comprised of a concave lens 31 and a Fresnel lens 32, and a focal distance  $f_n$  of the diffraction lens exists in a range satisfying the following inequality:  $\langle DF \rangle f_1 < f_n < f_2$ ,  $\langle DF \rangle$  where  $\langle DF \rangle f_1 = ((\lambda_2 / \lambda_1) - 1) f_0$   $\nu_0$   $\langle DF \rangle$   $\langle DF \rangle f_2 = (1 - (\lambda_2 / \lambda_1)) b$   $\langle DF \rangle$   $\langle DF \rangle b = -f_0(f_0 + \Delta) / \Delta$   $\langle DF \rangle$   $\lambda_1$  and  $\lambda_2$  are a designed lower limit wavelength and a designed upper limit wavelength, respectively,  $f_0$  and  $\nu_0$  are a focal distance and a partial dispersion of the objective lens, respectively, and  $\Delta$  is a difference between focal distances corresponding to the wavelengths  $\lambda_1$  and  $\lambda_2$ . 

IPC 1-7

**G11B 7/135**; **G02B 27/00**

IPC 8 full level

**G02B 5/18** (2006.01); **G02B 13/00** (2006.01); **G02B 13/18** (2006.01); **G11B 7/135** (2006.01); **G11B 7/1353** (2012.01); **G11B 7/1378** (2012.01); **G11B 7/1392** (2012.01); **G11B 7/1398** (2012.01); **G11B 7/1372** (2012.01)

CPC (source: EP US)

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